CLAIMS

1 A cleaning agent composition comprising a nonionic surfactant represented by the following formula (I):

$$R^{1}O(EO)_{x}(PO)_{y}H$$
 (I)

- 5 (wherein R¹ represents a linear or branched alkyl group having from 6 to 20 carbon atoms or a linear or branched alkenyl group having from 6 to 20 carbon atoms, EO represents an oxyethylene group, PO represents an oxypropylene group, EO and PO each is bonded by random addition or block addition, x number of EOs and y number of POs are arranged in an arbitrary order, x and y each independently represents an integer of 1 to 20, and x/(x+y) is 0.5 or more) and a quaternary ammonium hydroxide.
- 2 The cleaning agent composition as claimed in Claim 1, wherein the quaternary ammonium hydroxide is a compound represented by the following formula (II):

$$\begin{bmatrix} R^2 & R^4 \\ R^3 & R^5 \end{bmatrix} \quad OH^- \quad (II)$$

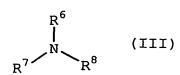
(wherein R^2 , R^3 , R^4 and R^5 each independently represents an alkyl group having from 1 to 6 carbon atoms or a hydroxyalkyl group having from 1 to 6 carbon atoms).

3 The cleaning agent composition as claimed in Claim 2,

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wherein the quaternary ammonium hydroxide is tetramethylammonium hydroxide.

- 4 The cleaning agent composition as claimed in any one of Claims 1, which further comprises an alkanolamine.
- 5 The cleaning agent composition as claimed in Claim 4, wherein the alkanolamine is a compound represented by the following formula (III):



(wherein R⁶ represents a hydroxyalkyl group having from 1 to 4 carbon atoms; and R⁷ and R⁸ each independently represents a hydrogen atom, an alkyl group having from 1 to 4 carbon atoms, a hydroxyalkyl group having from 1 to 4 carbon atoms or an aminoalkyl group having from 1 to 4 carbon atoms, or R⁷ and R⁸ combine to form an alkylene group having from 3 to 6 carbon atoms, and the alkylene group may have an oxygen or nitrogen atom inserted between carbon atoms constituting the main chain).

- 6 The cleaning agent composition as claimed in Claim 5, wherein the alkanolamine is any one compound selected from the group consisting of monoethanolamine, diethanolamine and triethanolamine.
- 7 The cleaning agent composition as Claimed in Claim 4, wherein the alkanolamine is contained in an amount of

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- 0.001 to 50 mass% based on the entire amount of the cleaning agent composition.
- 8 The cleaning agent composition as Claimed in Claim 1, wherein the nonionic surfactant is contained in an amount of 0.0001 to 10 mass% based on the entire amount of the cleaning agent composition.

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- 9 The cleaning agent composition as Claimed in Claim 8, wherein the quaternary ammonium hydroxide is contained in an amount of 0.001 to 30 mass% based on the entire amount of the cleaning agent composition.
 - 10 A method for cleaning a semiconductor wafer, comprising the steps of:
 - (i) cleaning the wafer using the cleaning agent composition as claimed in any one of Claims 1 to 9; and
- (ii) cleaning the wafer using a composition containing ammonia and hydrogen peroxide.
 - 11 The method for cleaning a semiconductor wafer as claimed in Claim 10, wherein the degreasing and removal of particles on the semiconductor wafer surface are performed in the step (i).
 - The method for cleaning a semiconductor wafer as Claimed in Claim 11, wherein the removal of particles on the semiconductor wafer surface are performed in the step (ii).

13 A method for producing a semiconductor wafer, comprising the steps of:

lapping the wafer surface;

specularly polishing the wafer surface;

cleaning the wafer using the cleaning agent composition as claimed in any one of Claims 1 to 9; and

cleaning the wafer using a composition containing ammonia and hydrogen peroxide.

- 14 A semiconductor wafer produced by the production 10 method as claimed in Claim 13.
 - 15 The semiconductor wafer as claimed in 14 wherein the number of particles attached to the wafer surface and having a particle size of 0.2 μm or more is 130 or less per 100 cm² of the wafer surface.
- 15 16 The semiconductor wafer as claimed in Claim 14, wherein the semiconductor wafer is a silicon wafer, a gallium-arsenic wafer, a gallium-phosphorus wafer or an indium-phosphorus wafer.
- 17 The semiconductor wafer as claimed in Claim 16, 20 wherein the semiconductor wafer is a silicon wafer and the surface roughness (Ra) is 0.2 nm or less.
 - 18 The semiconductor wafer as claimed in Claim 16, wherein the semiconductor wafer is gallium-arsenic wafer and the surface roughness (Ra) is 0.4 nm or less.